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Yakup Tolga ÇAKIR[1]
Mehmet SONBAHAR[2]
Hüseyin CAN[3]
Mehmet Ali KURNAZ[3]
Rıfkı ÖNDER[3]

RESEARCH

DRUG USAGE HABITS AND MULTIPLE DRUG USAGE OF ELDERLY INDIVIDUALS IN NURSING HOMES

ABSTRACT

Introduction: This investigation has been performed to determine the knowledge level and the attitudes of elderly individuals regarding the usage of prescription drugs, to examine the multiple drug usage by elderly, and to assess the factors affecting this situation.

Materials and Method: This study was performed in November-December 2012 with 171 individuals, aged 65 years and over, residing in Bursa Metropolitan Nursing Home, having no restraints on study participation, and volunteering to participate in the study. The questionnaire, developed as a result of the subject-related literature search, and composed of 37 open- and closed-ended questions, was applied with face-to-face interview technique. In the statistical analysis; mean±standard deviation (minimum-maximum values), percentage (number) were used in descriptive data; and Chi-Square Test was used in inter-group comparisons. p<0.05 value was regarded as significant.

Results: 51.5% of 171 individuals included in the study (n=88), aged 65 years and over, were men; the mean age of men was 73.04±0.7 years (65-94), and the mean age of women was 72.91±0.7 years (65-88). The usage of non-prescription drugs was 36.3%. The most used group of prescription drugs was anti-hypertensive drugs, and the most used group of non-prescription drugs was non-steroid anti-inflammatory drugs. 55.6% of the individuals were informed on the drugs they used and received this information from the doctor (60.7%) at the most. 56.3% of the individuals indicated that side effects occurred in relation to the drugs they used. The most frequently observed side effects were abdominal pain and nausea.

Conclusion: It has been detected that as the amount of drugs used by the individuals increases the prevalence of side effects also increase, that informing patients on treatment decreases the usage of non-prescription/OTC drugs and the side effects, and ensures that people use and store their drugs accurately.

Key Words: Aged; Adverse Effects; Polypharmacy.

ARAŞTIRMA

HUZUREVİNDEKİ YAŞLI BİREYLERİN İLAÇ KULLANIM ALIŞKANLIKLARI VE ÇOKLU İLAÇ KULLANIMI

ÖZ

Giriş: Bu araştırma yaşlı bireylerin reçete edilen ilaçlarını kullanmada sahip oldukları bilgi düzeyinin ve tutumlarının belirlenmesi, yaşlılarda çoklu ilaç kullanımının incelenmesi ve bu duruma etki eden faktörlerin değerlendirilmesi amacıyla yapılmıştır.

Gereç ve Yöntem: Bu çalışma Kasım-Aralık 2012 tarihleri arasında, Bursa Büyükşehir Huzurevi'nde yaşayan, çalışmaya katılmaya engeli olmayan ve çalışmaya katılmaya gönüllü 65 yaş ve üzeri 171 bireyle yapıldı. Konu ile ilgili literatür taraması sonucunda geliştirilen, açık ve kapalı uçlu 37 sorudan oluşan anket yüz yüze görüşme tekniği ile uygulandı. İstatistiksel analizde; tanımlayıcı verilerde ortalama±standart sapma (minimum-maksimum değerler), yüzde (sayı); gruplar arası karşılaştırmalarda Ki Kare Testi kullanıldı. p<0.05 değeri anlamlı olarak kabul edildi.

Bulgular: Çalışmaya dahil edilen 65 yaş ve üzeri 171 bireyin %51,5'i (n=88) erkek olup, erkeklerin yaş ortalaması 73,04±0,7 yıl (65-94), kadınların yaş ortalaması 72,91±0,7 yıl (65-88) idi. Reçetesiz ilaç kullanımı %36,3'tü. Reçeteli en fazla kullanılan ilaç grubu antihipertansifler, reçetesiz olarak en fazla steroid olmayan antiinflamatuar ilaçlar kullanılmaktaydı. Bireylerin %55,6'sı kullandığı ilaçlarla ilgili bilgi almışlardı ve bu bilgiyi de en fazla doktordan (%60,7) almıştı. Bireylerin %56,3'ü kullandığı ilaçlarla ilgili yan etki oluştuğunu belirtti. En sık gözlenen yan etkiler karın ağrısı ve mide bulantısı idi.

Sonuç: Bireylerin kullandığı ilaç miktarı arttıkça yan etki görülme sıklığının arttığı, hastaları tedavi konusunda bilgilendirmenin reçetesiz ilaç kullanımını ve yan etkileri azalttığı, kişilerin kullandığı ilaçları doğru şekilde kullanmasını ve muhafaza etmesini sağladığı saptanmıştır.

Anahtar Sözcükler: Yaşlı; Yan Etkiler; Çoklu İlaç Kullanımı.

İletişim *(Correspondance)*

Hüseyin CAN
İzmir Katip Çelebi Üniversitesi Atatürk Eğitim ve Araştırma Hastanesi, Aile Hekimliği İZMİR

Tlf: 0232 244 44 44
e-posta: drhuseyincan@hotmail.com

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[1] Uzundere Devlet Hastanesi, Aile Hekimliği ERZURUM
[2] İzmir Katip Çelebi Üniversitesi Atatürk Eğitim ve Araştırma Hastanesi, İç Hastalıkları İZMİR
[3] İzmir Katip Çelebi Üniversitesi Atatürk Eğitim ve Araştırma Hastanesi, Aile Hekimliği İZMİR

Introduction

Inappropriate polypharmacy and prescription practice entails increased burdens of impaired quality of life and drug related morbidity and mortality. Polypharmacy in the elderly also complicates therapy, increases cost, and is a challenge for healthcare agencies (1). Elderly consume 45% of all drugs in United Kingdom (UK), and 33% of all drugs in United States of America (USA). It is foreseen that elderly people, residing in nursing homes, use more drugs compared to the ones living in the community, and that they experience side effects more frequently (2). Medication therapy in elderly patients is difficult to manage and always has the potential of being hazardous. With the age-related changes that affect the pharmacokinetics and pharmacodynamics of a medication, prescribing medications is further complicated. Similarly, assessment of a medication's efficacy is difficult. The situation becomes more complicated when the patient is taking multiple medications (3).

Multiple drug usage is a health issue frequently observed in old age and is defined by the presence of at least one unnecessary drug in the treatment, or by the usage of drugs more than required, or by the concomitant usage of five or more drugs. It has been reported that there is a positive relationship between the chronic disease and the drug usage, and that elderly people, residing in nursing homes, use more drugs (1,4). There may be problems and mistakes in drug usages due to the conditions such as the increasing possibility of multiple diseases in elderly patients, the concomitant usage of different treatments, the physiological changes occurring with aging, and the reductions in sensory functions (1). The border between rational and irrational drug use in geriatric medicine is narrow. Drugs may be taken at very high or very low doses by elderly. They may be used at the wrong times or they may be completely forgotten. Moreover, since they are the group with the highest combined drug usage, they also have the most undesired effects.

Study has been conducted to determine the drug usage habits, the knowledge level and the attitudes of elderly individuals regarding the usage of their prescription drugs, to examine the multiple drug usage by elderly, and to assess the factors affecting this situation.

Materials and Method

In this study conducted on November 2012-December 2012 in Bursa Metropolitan Municipality Nursing Home; individuals, aged 65 years and over, and residing in the nursing home, have formed the universe of the study. The study is a cross-sectional study.

The questionnaire form has been composed after literature search, including 7 questions for socio-demographic characteristics of the participants, 5 questions for their conditions in the nursing home, 2 questions for chronic disease status, 6 questions for the drugs they use, and 17 questions for determining their knowledge and their attitudes related to the drugs they use. The questionnaire form, composed of a total of 37 questions, has been applied by face-to-face interview method. The open- and closed ended questions, included in the questionnaire form composed, have been asked to 83 women and 88 men, who reside in the nursing home, who are aged 65 years and over, who have no restraints on study participation, and who have accepted to participate in the study, after their oral consents have been obtained. Individuals in the nursing home have been informed on the subject, and their study participation has been voluntary. Individuals, who have physical, psychological, and cognitive diseases at a level to constrain face-to-face interviewing and questionnaire completion, and who do not accept to participate in the study, have not been included in this study. Before the study, official permit has been received from Bursa Metropolitan Municipality Social Services Head Office to conduct a study in the nursing home. Moreover, the approval, dated 19.10.2012 and numbered 52, has been obtained from İzmir Katip Çelebi University Non-Interventional Clinical Trials Ethics Committee.

In descriptive data; mean±standard deviation (minimum-maximum values), percentage (number) were used, and Chi-Square Test was used in inter-group comparisons. $P<0.05$ value was regarded as significant.

Results

More than half of the participants were men (51.5% of 171 individuals); the mean age of men was 73.04±0.7 years (min:65-max:94), and the mean age of women was 72.91±0.7 years (min:65-max:88). It was detected that 80.1% of the study participants had children, and the average number of children was 2.0±0.2. Other socio-demographic characteristics of the individuals participating in the study are presented in Table 1.

The majority of elderly individuals (74.3%; n=127) in the nursing home indicated that they had at least one chronic disease. The ratio of the ones with four and more chronic diseases

Table 1— Distribution of Socio-demographic Characteristics of Elderly Individuals.

Characteristics		n	%
Age (years)	65- 69	67	39.2
	70- 74	40	23.4
	75- 79	32	18.7
	80- 84	19	11.1
	85 and over	13	7.6
Gender	Female	83	48.5
	Male	88	51.5
Educational status	Illiterate	18	10.5
	Literate	19	11.1
	Primary school	58	33.9
	Secondary school	26	15.2
	High school	35	20.5
	College – university	15	8.8
Marital status	Married	48	28.0
	Single	15	8.8
	Widow	62	36.3
	Divorced	46	26.9
Health insurance	Yes	143	83.6
	None	28	16.4
Children	Yes	137	80.1
	None	34	19.9
Regular monthly income	Yes	145	84.8
	None	26	15.2
Duration of residence in the nursing home (years)	1- 4	116	67.8
	5- 8	35	20.5
	9 and over	20	11.7
Total		171	100.0

was 19.3% (n=33). The distribution of chronic diseases of the individuals by gender is shown in Table 2. 48.0% of the individuals, participating in the study, have indicated that they have been diagnosed hypertension. Thyroid gland diseases and osteoporosis were observed more apparently in women compared to men (p=0.044; p=0.002).

While 88.3% of the ones (n=151), participating in the study, have used at least one drug. While only 52.6% of the individuals (n=90) have used prescription drugs regularly, 26.3% have used both prescription and non-prescription drugs. The ratio of the ones using only non-prescription drugs was 9.4%. While 10.8% of women (n=9) and 8% of men (n=7) have used one drug daily; 44.6% of women (n=37) and 40.8% of men (n=36) have used five and more drugs daily. It was detected that the ratio of the usage of seven and more drugs daily was 24.1% (n=20) in women, and 10.2% (n=9) in men. When all elderly individuals, residing in the nursing home, were assessed; it was detected that the ratio of the ones using five and more drugs 42.8% (n=73).

When the prescription drugs used by the individuals are reviewed, anti-hypertensive drugs were used the most in both genders in compliance with their chronic diseases (48.5%). The prescription drugs used by women and men are shown in Table 3.

It was indicated that 69 of 73 individuals (94.5%), using five and more drugs daily, had drug-related side effects. 81.2% of the ones, having side effects due the drugs used, were using five and more drugs (p< 0.01). Observation of side effects increased proportionally with the number of drugs used daily. While the ratio of observing side effects was 8.7% in the ones using two drugs daily, this ratio was 31.8% in the ones using there drugs, it was 90.5% in the ones using five drugs, and the ratio of side effect occurrence was 100% in the ones using seven and more drugs.

Table 2— Distribution of Chronic Diseases by Gender.

Chronic disease	Male n (%)	Female n (%)	Total
Hypertension	38 (45.8)	44 (50.0)	82 (48.0)
Diabetes mellitus	24 (28.9)	23 (26.1)	47 (27.5)
Cardiovascular system*	25 (30.1)	19 (21.6)	44 (25.7)
Respiratory system	9 (10.8)	15 (17.0)	24 (14.0)
Psychiatric	11 (13.3)	10 (11.4)	21 (12.3)
Gastrointestinal system	12 (14.4)	12 (13.6)	24 (14.0)
Thyroid diseases	6 (7.2)	1 (1.1)	7 (4.1)
Osteoporosis	11 (13.3)	1 (1.1)	12 (7.0)
Rheumatoid	8 (9.6)	9 (10.2)	17 (9.9)
Cerebrovascular system	6 (7.2)	10 (11.4)	16 (9.4)
BPH+	0 (0.0)	11 (12.5)	11 (12.5)
Arthritis	12 (14.5)	9 (10.2)	21 (12.3)
Cancer	1 (1.2)	0 (0.0)	1 (0.6)
Sensory system	2 (2.4)	7 (8.0)	9 (5.3)
Anemia	8 (9.6)	3 (3.4)	11 (6.4)
Dermatological disease	2 (2.4)	3 (3.4)	5 (2.9)
Urinary incontinence	4 (4.8)	1 (1.1)	5 (2.9)

*Cardiovascular system diseases excluding hypertension, +BPH: Benign Prostate Hypertrophy, percentage of male patients (n=88).

Table 3— Prescription Drugs Used by Gender.

Prescription Drugs Used	Gender				Total	
	Female		Male			
	n	%	n	%	n	%
Anti-hypertensive drugs	38	45.8	44	50.0	83	48.5
Anti-diabetics	24	28.9	23	26.1	47	27.5
Cardiovascular system drugs	25	30.1	19	21.6	43	25.1
Gastric drugs	15	18.1	8	9.1	23	13.5
Psychiatric drugs	13	15.7	10	11.4	23	13.5
Respiratory system drugs	8	9.6	15	17.0	23	13.5
Prostate drugs	–	–	11	12.5	11	12.5
Anti-inflammatory drugs	10	12.0	10	11.4	20	11.7
Anti-rheumatoid drugs	9	10.8	7	8.0	16	9.4
Cerebrovascular system drugs	6	7.2	10	11.4	16	9.4
Iron preparations	9	10.8	4	4.5	13	7.6
Ophthalmic preparations	4	4.8	7	8.0	11	6.4
Osteoporosis drugs	9	10.8	1	1.1	10	5.8
Thyroid drugs	6	7.2	1	1.1	7	4.1
Dermatological drugs	3	3.6	3	3.4	6	3.5
Hemorrhoid drugs	2	2.4	4	4.5	6	3.5
Urinary system drugs	4	4.8	1	1.1	5	2.9
Anti-neoplastic drugs	1	1.2	–	–	1	0.6

Less than half of elderly individuals (35.7%) in the nursing home were using non-prescription drugs, and these ratios were detected as 38.6% in women, and as 33.0% in men. It was detected that the non-prescription drugs used the most were analgesics (72.6%). Then following analgesics respectively, vitamins (24.2%), gastric drugs (17.7%), skin creams (12.9%), common cold drugs (9.7%), anti-histaminic drugs (4.8%), antitussive drugs (3.2%), and antibiotics (3.2%) were being used.

When it was questioned why the individuals were using non-prescription drugs; the individuals indicated the most that they have used non-prescription drugs since they have thought of its working out for their diseases (59.0%). The ratio of the ones using non-prescription drugs, recommended by friends, was 27.9%. 8.1% of the ones purchasing non-prescription drugs indicated that they did not need prescriptions since they have used the drug continuously, and 5.0% of them indicated that they did not need prescriptions since social security did not reimburse for the drug.

The ratio of the ones, being examined and prescribed by the doctor due to his/her disease, but not purchasing the prescription drugs, was 23.4% (n=40). 35.0% of these (n=14) indicated they did not purchase the drugs since they thought that they did not recover, 25.0% (n=10) indicated that they did not purchase the drugs since they thought that the drugs used had side effects, 20.0% (n=8) indicated that they did not purchase the drugs since their complaints resolved, 12.5% (n=5) indicated that they did not purchase the drugs since the taste of the drug was unpleasant, and 7.5% (n=3) indicated that they did not purchase the drugs since the tablets given were big.

While 58.3% of the elderly individuals, using drugs in the nursing home, indicate that they know the name of the drug they use, 75.0% of these individuals indicated that they have received information from a doctor, a nurse, or a pharmacist on the drugs required to be used. For the ones, receiving information related to the drugs used, the ratio for knowing the name, the dose, the side effects, and the drug-food interactions of the drug was higher compared to the ones, not receiving information related to the drugs used. Status of knowledge on drugs used for the individuals in the nursing home is shown in Table 4.

The majority of 30 people (96.7%; n=29), storing the drugs they use at storage conditions indicated in drug package, and 91.5% of 47 people (n=43), reading the package insert of the drug they use, indicated that they received information on the drugs used. These ratios were highly significant compared to the ones, not receiving information on the drugs used ($p<0.01$). It was detected that the ones, receiving information on the drug to be used, have stored their drugs at more accurate conditions compared to the ones not receiving information ($p<0.01$).

While 31.1% of the elderly individuals (n=47), using drugs in the nursing home, have read the package insert of the drug used, 68.9% (n=104) have indicated that they have not read the package insert. When the reasons for not reading the

Table 4— Status of Knowledge Related to the Drugs Used.

Status of Knowledge Related to the Drugs Used		Status of Being Informed Related to the Drugs Used				P
		Informed		Not Informed		
		n	%	n	%	
Knows about names	Yes	66	75.0	22	25.0	**<0.01**
	No	18	28.6	45	71.4	
Knows about doses	Yes	47	88.7	6	11,3	**<0.01**
	No	37	37.8	61	62.2	
Knows about how many are required to be taken daily	Yes	76	57.6	56	42.4	**0.204**
	No	8	42.1	11	57.9	
Knows about side effects	Yes	38	95.0	2	5.0	**<0.05**
	No	46	41.4	65	58.6	
Knows about interactions	Yes	29	96.7	1	3.3	**<0.05**
	No	55	45.5	66	54.5	
Knows about the usage purpose	Yes	75	78.1	21	21.9	**<0.01**
	No	9	16.4	46	83.6	

package insert were reviewed; it was detected the most as not being able to understand the statements written (n=42, 40.4%). Other reasons were respectively, not feeling the need to read the package insert (n=36, 34.6%), being illiterate (n=14, 13.5%), and having vision problems (n=12, 11.5%).

The majority of the elderly individuals in the nursing home (55.6%; n=84) indicated that they have received information on the drugs used; 60.7% (n=51) have indicated that they have received this information from the doctor, 27.4% (n=23) from the nurse, and 11.9% (n=10) from the pharmacist. When the reasons for not applying the information were reviewed; they indicated the most that they did not apply the information since they forgot the information provided (n=6, 37.5%), and since they did not understand the information (n=5, 31.2%). When the relationship between the educational levels of the individuals and their status of being informed was examined; it was detected that 91.7% of the ones (n=44), having high school education and higher levels of education, and 38.8% of the ones (n=40), having secondary school and lower levels of education, received information on drugs used. As the educational level increased, the ratio of receiving information on drugs also increased ($p<0.01$).

While 76.2% (n=64) of the ones, receiving information on the drugs used, did not use non-prescription drugs, only 23.8% (n=20) used non-prescription drugs. 61.2% (n=41) of the ones, not receiving information on drugs used, indicated that they used non-prescription drugs. It was detected that the non-prescription drug usage was higher in the ones, not receiving information on drugs used, compared to the ones receiving information ($p<0.05$). It was detected that informing the patient decreased the usage of non-prescription drugs, which is one of the significant problems in drug usage.

The majority of 151 elderly individuals (56.3%; n=85), who used drugs, indicated that side effects occurred due to the drugs used. Respectively, the most frequently observed side effects were indicated to be abdominal pain (n=45, 29.8%), nausea (n=20, 13.2%), dizziness (n=19, 12.6%), dry mouth (n=15, 9.9%), itching/rash (n=9, 6.0%), and diarrhea (n=5, 3.3%).

While 75.5% (n=114) of the individuals, participating in the study and using drugs, indicated that they received their drugs on time, 24.5% (n=37) indicated that they did not receive their drugs on time. Individuals indicated the most frequently that they did not take their drugs on time since they forgot it (n=15, 40.5%). Other reasons, detected respectively, were negligence (n=10, 27.0%), receiving the drug when he/she feels that it is required (n=9, 24.4%), not liking to receive drugs (n=1, 2.7%), not being able to have the drug prescribed (n=1, 2.7%), and not finding the drug appropriate for himself/herself (n=1, 2.7%).

Elderly individuals, using drugs, indicated the most that they stored their drugs in a closed cupboard (n=75, 49.7%). It was detected that the ratio of the ones, storing in an open place, was 24.4% (n=37), the ratio of the ones, storing in drug package and at specified conditions was 19.9% (n=30), and the ones, storing in the refrigerator, was 6.0% (n=9).

Discussion

More than half of the individuals, participating in our study, had more than one chronic disease. In many studies conducted in elderly, hypertension leads the list of chronic diseases most frequently observed in both genders (5). The data, revealed as a result of our study, demonstrate similarities with the chronic disease characteristics of the elderly population. Co-existence of more than one disease in elderly individuals is also rather common; 19.3% of the individuals in our study had four and more chronic diseases. While thyroid diseases, osteoporosis, and urinary incontinence were observed in women significantly more than men, no significant difference was detected in the prevalence of other chronic diseases between women and men, participating in our study.

The most used drugs were respectively also anti-hypertensive drugs, anti-diabetic drugs, and cardiovascular system drugs, in compliance with the diseases most frequently observed in our study. In a study conducted in broad scope as to cover many nursing homes in our country, it has been detected similar to our study that drugs for hypertension, diabetes, and cardiac diseases are used more (5). One study concluded that aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), and cardiovascular drugs caused 91% of the adverse drug reactions necessitating hospital admissions. Because of common geriatric ailments, such as osteoarthritis and degenerative joint disease, NSAIDs are necessary, and they effectively relieve pain in the elderly. Unfortunately, NSAIDs can also potentiate, increase, or decrease the effect of many prescription drugs that this population takes. The most common and deadliest interactions are with anticoagulants, oral hypoglycemics, diuretics, and antihypertensives (6). The ratio of non-prescription drug usage was found high in our study (36.3%). While the drugs, used the most as non-prescription were NSAIDs, vitamins were used at second most frequency. Analgesics are the non-prescription drug group, used the most frequently in the world (3,5,7). In our study, a

result has been also reached in parallel to these results. While 58.1% of the ones, using non-prescription drugs, thinking that they work out well for their diseases, the studies conducted also demonstrate that individuals use non-prescription drugs, thinking of them as working out for themselves the most (3,5,7).

In a study conducted in nursing homes in our country, it has been detected that 60% of women and 53% of men used at least one drug (8). In another study conducted, the most commonly used medications were for the cardiovascular and central nervous systems. The number of medications per person increased from 3.1±2.8 to 3.8±3.1 (p=.0001), and polypharmacy (concominant use of over five medications) increased from 19 to 25% (p=.006). These changes were most prominent among persons aged 85 years or over, especially among women (9). Almost 89.0% of women and 88.3% of men in our study group have been using at least one drug similar to the studies conducted. In our study, it has been detected that women consumed more drugs than men; while the amount of drug consumed by women daily was 4.12 units, the amount of drug consumed by men daily was 3.76 units. The amounts of drugs used daily have been found higher in our study compared to other studies; this situation may be due to the high amount of non-prescription drugs used. While the non-prescription drug usage was 23.8% in the ones, receiving information on the drug used, 67.2% of the ones using non-prescription drugs have not received information on the drug used. The non-prescription drug usage of the ones, who have received information on the drug used, is significantly less than the ones, who have not received information; this situation demonstrates the importance of informing the patients while treating them, and of preventive medicine.

In ours study, the prevalence of side effects in individuals using drugs has been found high (56.3%). This situation can be explained by the high number of drugs used by the individuals daily and the high number of chronic diseases; as the number of drugs used daily increases, the side effect prevalence also increases proportionally (10). While side effects are observed in 20.5% of the individuals, using four and less drugs daily, side effects are observed in 94.5 of the ones, using five and more drugs daily. The amount of drugs used daily may be reduced by the effect of the patient and the examining physician. Especially patient's showing all drugs used to the examining physician may prevent the unnecessary prescription of the same drugs with similar effects. Patients' receiving non-prescription drugs may be reduced by the trainings provided to the patient, information about "rational use of medicine" may be provided to physicians by on-the-job trainings, it may be emphasized that giving drugs is not good treatment, and informing the patient during the treatment process, treatment monitoring, and patient's compliance with the treatment are also important. Physician's questioning the drugs used by the patient is significant in efficient treatment. The studies conducted report that one of the significant problems, affecting the drug usage in elderly, is the low level of education (10,11). Also in our study, as the educational level increases in individuals, the level of receiving information on drugs used also increases; nearly all individuals, having high school education or higher levels of education, receive from physicians information on drugs used.

When it is asked from whom the elderly receive the information on drug usage, 44.4% state that they receive no information, 60.7% of the ones, receiving information, state that they receive information from the physician. 80.9% of the individuals, participating in our study, have indicated that they have applied this information they have received on the drugs used. The ones, who do not apply the information provided to themselves, have indicated that they do not apply the information provided to themselves due to reasons such as forgetting the information and not understanding the information most frequently; this situation demonstrates the importance of informing the patient in written, visually, and orally in accordance with the educational and social level of the patient and the repetitive explanation of this information in each patient examination.

The majority of individuals (68.9%), participating in our study, have indicated that they do not read the package insert of the drug used, and that they do not read it since they do not understand the written statements the most. As it can also be seen in our study, informing patients on their treatments decreases the defects in drug usage; therefore undesired effects may be reduced.

In conclusion; we think that controlling the chronic diseases in elderly, training healthcare employees on rational use of medicine, informing the elderly on the drugs they use, and controlling the drugs in regular intervals, and again informing the elderly on the side effects and the storage conditions of drugs will prevent poly-pharmacy. Although we think that this study may contribute to the review of the dimensions of the drug usage in elderly individuals, to the reduction of drug-related problems, and to the development of some strategies in this field, we also consider that studies on the subject should be conducted in broader scope.

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